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09/222,073    12/29/98    SCHALK

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EXAMINER	

ART UNIT	AZAD, A PAPER
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2741    3

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/222,073

Applicant(s)

SCHALK ET AL.

Examiner

ABUL K. AZAD

Art Unit

2741

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

## Status

- 1) ☐ Responsive to communication(s) filed on 29 December 1998.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-8 and 13-25 is/are rejected.
- 7) ☐ Claim(s) 9-12 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 1998 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some \* c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) \_\_\_\_\_.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

## Attachment(s)

- 14) ☒ Notice of References Cited (PTO-892)
- 15) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 16) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 17) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 18) ☐ Notice of Informal Patent Application (PTO-152)
- 19) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the database-matching scheme, supplemental matching technique, and fuzzy matching scheme must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show database matching scheme, supplemental matching technique, and fuzzy matching scheme as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 13, 14, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Fisher et al. (US 4,882,757).

As per claim 1, Fisher teaches, "a method of recognizing a spoken digit string," comprising:

"(a) receiving the spoken digit string" (col. 1, lines 61-62, Fig. 1, input speech)

"(b) analyzing the spoken digit string to generate a list of hypothesized digit strings arranged in ranked order based on a likelihood of matching the spoken digit string" (col. 1, lines 52-68, the claim language reads on . . . several sentence alternatives in parallel, and select the best one. Here inherently digit strings (sentence) arranged in ranked order and from that select the best one.)

"(c) using a given knowledge based recognition strategy, determining whether individual hypothesized strings of said list satisfy a given constraint beginning with the string having the greatest likelihood of matching said spoken string" (col. 1, lines 52-68)

"(d) selecting the first string in the list satisfying the constraint as the recognized string" (abstract).

As per claim 13, Fisher teaches, "wherein the knowledge based recognition strategy is a digit positional strategy and the constraining is a given digit position" (spoken digits are like words, inherently the sentence will constrain a given word (digit) position)

As per claim 14, Fisher teaches, "wherein the knowledge based recognition strategy is a digit string length strategy and the constraint is a given digit string length" (Fig. 3 and 4).

As per claim 25, it has similar limitations as claim 1, so that claim 25 is rejected for same reasons.

5. Claims 1-3, 13, 20-21, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Chou et al. (US 5,606,644).

As per claim 1, Chou teaches, "a method of recognizing a spoken digit string," comprising:

"(a) receiving the spoken digit string" (Fig. 1, unknown speech)

"(b) analyzing the spoken digit string to generate a list of hypothesized digit strings arranged in ranked order based on a likelihood of matching the spoken digit string" (abstract)

"(c) using a given knowledge based recognition strategy, determining whether individual hypothesized strings of said list satisfy a given constraint beginning with the string having the greatest likelihood of matching said spoken string" (abstract)

"(d) selecting the first string in the list satisfying the constraint as the recognized string" (abstract).

As per claim 2, Chou teaches, "said knowledge based recognition strategy comprises a database matching scheme" (abstract).

As per claim 3, Chou teaches, "wherein step (c) comprises searching a database of valid data strings to determine whether any of the hypothesized digit strings match one of the valid digit strings" (col. 5, lines 34-42).

As per claim 13, Chou teaches, "wherein the knowledge based recognition strategy is a digit positional strategy and the constraining is a given digit position"

(spoken digits are like words, inherently the sentence will constrain a given word (digit) position)

As per claim 25, it has similar limitations as claim 1, so that claim 25 is also rejected for same reasons.

As per claims 20-21, they have similar limitations as claim 2-3, so that claim 20-21 are also rejected for same reasons.

6. Claims 1, 13, 25 are alternatively rejected under 35 U.S.C. 102(b) as being anticipated by Schwartz et al. (US 5,241,619).

As per claim 1, Schwartz teaches, "a method of recognizing a spoken digit string," comprising:

"(a) receiving the spoken digit string" (Fig. 1, Audio speech signal)

"(b) analyzing the spoken digit string to generate a list of hypothesized digit strings arranged in ranked order based on a likelihood of matching the spoken digit string" (abstract)

"(c) using a given knowledge based recognition strategy, determining whether individual hypothesized strings of said list satisfy a given constraint beginning with the string having the greatest likelihood of matching said spoken string" (col. 3, lines 34-59)

"(d) selecting the first string in the list satisfying the constraint as the recognized string" (abstract).

As per claims 19 and 25 have similar limitations as claim 1, so that claim 19 and 25 are also rejected for same reasons.

As per claim 13, Schwartz teaches, "wherein the knowledge based recognition strategy is a digit positional strategy and the constraining is a given digit position" (spoken digits are like words, inherently the sentence will constrain a given word (digit) position).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher et al. (US 4,882,757), alternatively over Chou et al. (US 5,606,644) or alternatively over Schwartz et al. (US 5,241,619).

As per claims 15, 16, and 17, Fisher, Chou or Schwartz do not explicitly teach, "if none of the hypothesized digit strings satisfy said constraint: (e) prompting entry of a second spoken digit string and performing same steps as claim 1." It would have been obvious to one of ordinary skill in the art at the time of the invention to prompt entry of a second spoken digit string and performing recognition steps, so as to recognize another or same digit string for identifying the number correctly.

As per claim 18, Fisher, Chou or Schwartz does not explicitly teach, "step of prompting entry of a spoken digit string prior to step (a)." It would have been obvious to one of ordinary skill in the art at the time of the invention to prompt

entry of a spoken digit string prior to step (a), so as to enter the speech right way to recognize spoken digit correctly. (Official notice has been taken based on well-known prompt by the system to enter the speech).

As per claim 19, it has similar limitations as claim 18, so that claim 19 also rejected for same reasons.

9. Claims 5-7, 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher et al. (US 4,882,757) alternatively Chou et al. (US 5,606, 644) and alternatively Schwartz et al. (US 5,241,619) as applied to claim1 above, and further in view of Doddington et al. (US 5,222,187).

As per claims 5-6 and 22-24, Fisher, or Chou or Schwartz does not teach to perform checksum constraints. However, checksum constraints have been taught by Doddington (Abstract). It would have been obvious to one of ordinary skill in the art to perform checksum constraints instead of any hypothesized constraints because Doddington teaches that the checksum constraints result in increased recognition accuracy (Abstract).

As per claim 7 it would have been obvious to one of ordinary skill in the art at the time of the invention to use well-known Luhn checksum algorithm so as to increase recognition accuracy.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher et al. (US 4,882,757), alternatively Chou et al. (US 5,606,644) and alternatively Schwartz et al. (US 5,241,619) as applied to claim1 above, and further in view of Baker (US 4,866,778).



As per claim 8, Fisher, or Chou or Schwartz did not teach, "(e) if none of the hypothesized strings satisfy said constraint, using a supplemental matching technique to select the hypothesized digit string that most closely satisfies the constraint." However, it has been taught by Baker (Abstract, it can read on a speech recognition system which can perform multiple recognition passes on each word). It would have been obvious to one of ordinary skill in the art at the time of the invention to use supplemental matching technique because Baker teaches that these provide apparatuses capable of recognizing words from a large vocabulary and yet also capable of recognizing most words quickly (col. 4, lines 14-17).

#### ***Allowable Subject Matter***

11. Claims 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Abul K. Azad** whose telephone number is **(703) 305-3838**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **David R. Hudspeth**, can be reached at **(703) 308-4825**.

Any response to this action should be mailed to:

**Commissioner of Patents**

**Washington, D.C. 20231**

Or faxed to:

**(703) 305-9508**

(For informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121  
Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application  
should be directed to the Group Receptionist whose telephone number is **(703)  
305-3900**.

Abul K. Azad

June 13, 2000



**DAVID R. HUDSPETH  
SUPERVISORY PATENT EXAMINER  
GROUP 2700**